Chapter 4 SUPPORT OF MARINE SAFETY AND MARINE ENVIRONMENTAL PROTECTION (MEP) PROGRAMS

A. THE MARINE SAFETY OFFICE

1. The MSOs located throughout the Coast Guard districts are charged with the responsibility of facilitating safe marine commerce, protecting national security and promoting environmental safety within their assigned zones.

2. Marine Safety Detachments (MSD) are sub units of an MSO office.

B. POLLUTION RESPONSE

1. Marine safety and marine environmental protection (MEP) are two essential Coast Guard programs. The principal objectives of the MEP program are to:

   a. Minimize damage caused by pollutants released into navigable waters.

   b. Overcome or reduce threats to the marine environment caused by potential spills of oil or other hazardous substances.

   c. Assist in national and international pollution response planning.

2. Auxiliary aviation facilities and personnel can be of material assistance to the MSO's when responding to the first two objectives above and should be included as potential assets in response planning.

3. Fortunately, very large spills are infrequent. Nonetheless, numerous spills of all sizes occur daily. The damage caused by a spill is a function of many variables, such as the location of the spill, type and quantity of the material spilled, prevailing weather and sea conditions, etc. It is important to note that prompt detection and notification are also key determinants of the environmental damage associated with a spill. All means that shorten the lag time between the occurrence of a spill and notification of appropriate agencies are potentially valuable in reducing subsequent environmental damages. Auxiliary aircraft whether on designated pollution patrols, SAR callout, or other missions are a useful observation platform for spill detection.

4. Auxiliary aircraft can help the MSOs in this mission by responding to reported spills, monitoring cleanup operations and/or patrolling harbors or other areas for unreported spills. The Auxiliary aircraft provides the MSO or MSD with a dedicated aviation resource.

5. Auxiliary aircraft may be deployed with an all Auxiliary crew to report their sightings or used to transport Coast Guard personnel or personnel from other federal or state agencies.

6. The information requirements for spill reporting are somewhat technical, and may have other implications in the event of legal action initiated pursuant to federal or state statutes. Reporting procedures may differ somewhat among the Coast Guard districts. It is best if Auxiliary aviation personnel visit the particular MSO or MSD being served to meet with the responsible personnel, get copies of specific reporting forms and procedures, and identify ways in which the Auxiliary can support the MSO or MSD. Some general background is provided below. Whenever possible it is desirable to gather photographic evidence to supplement written reports. Ideally these should be oblique color photographs taken with a 35mm camera or video camera, preferable one with a date/time stamp inserted on the video. Consult with your local MSO/MSD for guidance on "chain of custody" procedures to be used for exposed film or videotape. Endeavor to obtain and record the following information:

   a. Record the apparent source of the spill. Be careful in this regard. Sometimes the oil from another location up current will hang around a moored vessel, dock or other facility and lead you to reporting a false source. Always look for traces of oil up current of the suspected source. Often you will see a point source on a leaking facility or vessel. Record any identification readily visible. Note whether the source is a vessel, loading facility, wellhead, offshore platform, pipeline, discharge pipe, etc.

   b. If the apparent source is a vessel, record as much information as possible. Note the vessel type, color, location of superstructure, deck arrangement, colors on funnels, etc. Such information could be useful in the event that the vessel has departed prior to the arrival of Coast Guard personnel.

   c. Record the time of each sighting.

   d. Record the latitude and longitude and body of water.

   e. Record the following weather conditions;

      (1) Ceiling

      (2) Visibility

      (3) Wind direction and velocity

      (4) Sea conditions, height and direction of movement

   f. Describe the size of the spill, and;

      (1) Direction of movement

(2) Direction, width and length from the source.

g. Describe the density of the oil sheen. The terms defined below are used to describe the sightings. A combination of these terms are normally used since the center of a spill will tend to be thicker than the edges. These terms may be modified with Light, Medium or Heavy. Ranked in order of increasing spill thickness, these include:

(1) **Light Sheen**. A light, almost transparent layer of oil which causes a glassy sheen on the surface of the water. No "rainbow" hues are visible. Some natural biological processes can also cause a sheen.

(2) **Silver sheen**. A slightly thicker layer of oil that imparts a silvery or shimmery look to the sheen.

(3) **Rainbow sheen**. A rainbow-like reflection in the sheen.

(4) **Brown oil**. Typically a 0.1 cm. to 1.0 cm. thick layer of water-in-oil emulsion. The thickness can vary widely depending on wind and current conditions.

(5) **Mousse.** A water-in-oil emulsion often formed as oil weathers (the lighter components have evaporated); colors can range from orange or tan to dark brown.

(6) **Black Oil**. An area of black colored oil sometimes appearing with a latex texture. These areas are often confused with kelp beds and other natural phenomena. To confirm that oil is present, look for at least a slight rainbow sheen around the edges.

(7) **Mousse Streaks**. Dark colored oil with obvious textured appearance oriented in lines or streaks. Brown oil and mousse can easily be confused with algae scum collecting in convergent lines, algae patches or mats of kelp or fungus.

(8) **Tar balls**. Heavy globules of weathered oil that have formed a pliable ball. Size may vary from pinhead to about 30 cm. Sheen may or may not be present. These are often found along a beach after a major spill of heavy oil.

(9) **Tar mats**. Non-floating mats of oily debris (usually sediments and/or plant matter) that are found on beaches or just offshore.

(10) **Pancakes.** An isolated patch of oil shaped in a mostly circular fashion. Pancakes can range in size from a few meters across to hundreds of meters in diameter. Sheen may or may not be present.

7. Spill characteristics appear differently under low light or strong wind conditions. Observations in an "up-sun" (looking toward the sun) direction are often difficult to interpret. New observers should be teamed with experienced observers in order to make the proper distinctions between oil types and to differentiate between oil spill and natural phenomena.

8. Reporting Example: "A heavy rainbow sheen with streaks of black oil extends 1 mile x 100 yards south from the facility." Remember to save all notes, working papers, and other information related to the incident. Spill information should be radioed to the cognizant Coast Guard group office or MSO/MSD, along with any information requested. Upon landing, the appropriate Coast Guard unit should be contacted by telephone and advised of any additional information.

9. The Auxiliarist should arrange with the cognizant Coast Guard authority for the original documentation (notes, flight logs, photographs, videotapes, etc.) to be conveyed to the MSO/MSD, if requested. Do not discard any of the original documentation until authorized to do so, as these could be important evidence in any legal proceeding. Advise the MSO/MSD or group office as soon as a spill is detected. Do not delay notification while you obtain the information listed above. The group or MSO/MSD will advise of any additional information or specific questions to be answered.

10. As noted above, the MEP program is among the more technical of the Coast Guard programs. Although Auxiliarists can be of assistance merely by reporting a previously unknown spill, it is preferable that the Auxiliarist has as much training as possible. As previously, stated, even experienced observers sometime have difficulty discriminating among the various spill appearance categories and/or between chemical or petroleum spills and certain natural phenomena.

11. There are several opportunities for additional training relevant to the MEP program. For example, the Coast Guard Institute offers an excellent correspondence course (available to Auxiliarists) on MEP. In addition, many MSO's offer seminars/workshops for internal personnel that Auxiliarists may attend by prior arrangement. Some districts arrange to have MEP program personnel as instructors at Auxiliary aviation seminars/meetings. Any such training should be retained in the files of the ADSO for each air station. Records of such training could be relevant in the event of legal action.

C. UTILIZATION

1. Auxiliary aviation program managers are encouraged to visit the MSO/MSD, get to know the commanding officer, the operations officer, and unit personnel. Explain what Auxiliary aviation resources are available and how to request them. The MSO/MSD should be provided with a current list of the Auxiliary aircraft available in their area of responsibility. Revisit the MSO regularly to encourage the use of Auxiliary aviation.

D. JOB AID

1. An excellent job aid, which includes descriptions, as well as aerial photos, is published by NOAA/HAZMAT and the U.S. Coast Guard Marine Safety Office Puget Sound, Port Operations Department. It is titled "OPEN WATER OIL IDENTIFICATION JOB AID FOR AERIAL OBSERVATION"